

Acute Care Hospitals Experience with CRE

Daily Infection Prevention and Control Work

Infection Surveillance

- Definition of CRE = Carbapenem Resistant Enterobacteriaceae
 - The Centers for Disease Control and Prevention (CDC) defines as *Enterobacteriaceae* that are nonsusceptible to one of the carbapenems (doripenem, ertapenem, meropenem, or imipenem) **AND** resistant to all tested third-generation cephalosporins (ceftriaxone, cefotaxime, and ceftazidime)
 - For the purposes of the Michigan Department of Community Health (MDCH) Surveillance and Prevention Initiative, defined as *Escherichiacoli* and *Klebsiella pneumoniae* reported as non-susceptible to any of the carbapenems
 - For the MDCH Bureau of Laboratories Confirmatory testing project, defined as any *Enterobacteriaceae* non-susceptible to any carbapenem
- CRE are difficult to detect
 - Resistance can reside within and be transferred between multiple organisms
 - Multiple drug resistance mechanisms already common in some of these organisms
 - Reliance on phenotypic testing for the presence of the resistance mechanism
- Facilities' laboratories conduct multiple, specialized tests to see if the organism is a CRE. All isolates that are suspect or positive can be sent to the MDCH Bureau of Laboratories for confirmatory testing (funding limited).
- CRE isolates discovered by the lab are reported to infection control. Physicians or clinical staff also will contact Infection Control if the CRE infection is documented in the patient chart or transfer notes. If available, facilities use data mining software to build a line list and be alerted with all positive results.

Infection Reporting

- CRE and other very drug resistant bacteria are currently reported internally as part of infection prevention. Most acute care facilities track methicillin-resistant *Staphylococcus aureus* (MRSA), vancomycin-resistant *Enterococci* (VRE), resistant *Acinetobacter baumannii*, and other significant organisms. Each facility conducts an annual risk assessment based on the prevalence and transmission of resistant organisms in their facility as part of the Joint Commission Standard.
- CRE that meet the specific surveillance definition are reported voluntarily to the MDCH as part of the CRE Surveillance and Prevention Initiative.
- State CRE Initiative shares data with participants that summarize individual facility rates and statewide rates for comparison as well as a monthly newsletter. CRE rates are shared internally with stakeholders at the facilities.
- All reportable disease outbreaks, organisms of public health significance, and healthcare-associated outbreaks are reported to the MDCH and/or local public health per communicable disease reporting rules.

Infection Control

- National guidelines for CRE published by the CDC and followed by acute care facilities.
- All positive cultures with multi drug-resistant organisms (MRSA, VRE, *Acinetobacter baumannii* etc.) are documented in the microbiology section of the patient chart.
- All patients who have test positive for CRE should be placed immediately into contact isolation
 - Gowns and gloves are used by the staff to limit transmission of the bacteria and transmission to other patients.

- Orders for isolation:
 - Can be built to automatically trigger based on positive microbiology lab report, clinical documentation
 - Clinical staff may initiate based on patient history or symptoms
- Hand hygiene is conducted by all healthcare personnel between contact with patients to minimize the germs shared between patients and their environment according to the Joint Commission Standards.
- Infection Control Department watches closely for any transmission of CRE among inpatients.
 - If an outbreak is suspected, it is reported to local public health and facilities would work closely with them for remediation.
- Daily and discharge room cleaning is done with an effective cleaning agent to disrupt transmission.
- Dedicated patient care equipment for patients in contact isolation and private rooms are recommendations for CRE infection control.
- Many facilities have an antimicrobial stewardship committee to decrease inappropriate use of antibiotics and prevent increased antimicrobial resistance.
- Communication between facilities is important. At time of transfer, documentation of all resistant organisms is provided including any infectious disease or infection prevention consult notes.
- Many acute care facilities work collaboratively with their local healthcare partners to make sure communication is shared among area facilities.

Infection Prevention Education

- Infection Preventionists and clinical staff are involved with continued learning about CRE detection and prevention of transmission. National webinars have been hosted by the CDC and the Association of Professionals in Infection Control and Epidemiology (APIC).
- Statewide CRE conference hosted in November with international speakers from endemic settings with a target audience of many acute care Infection Preventionists and their CRE prevention teams.